

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning on page 1, line 4 with the following amended paragraph:

BACKGROUND OF THE INVENTION

Please replace the paragraph beginning on page 1, line 6 with the following amended paragraph:

Technical Field of the Invention

Please replace the paragraph beginning on page 1, line 7 with the following amended paragraph:

~~The present invention relates to a method~~ Methods of manufacturing semiconductor device, and more particularly, to a method of manufacturing flash memory device devices are disclosed.

Please replace the paragraph beginning on page 2, line 19 with the following amended paragraph:

SUMMARY OF THE INVENTION DISCLOSURE

Please replace the paragraph beginning on page 2, line 20 with the following amended paragraph:

Accordingly, ~~the present invention is contrived to~~ the disclosed methods for manufacturing flash memory devices substantially obviate one or more problems due to limitations and disadvantages of the related art.

Please replace the paragraph beginning on page 2, line 23 with the following amended paragraph:

~~An object of the present invention is to provide a~~ One disclosed method of manufacturing flash memory device is capable of sufficiently reducing the critical dimension of the active region, increasing the surface area of the floating gate, implementing a uniform and flat floating gate and prohibiting generation of a moat.

Please amend the paragraph beginning on page 3, line 3 as follows:

~~Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention may be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.~~

Please replace the paragraph beginning on page 3, line 10 with the following amended paragraph:

~~To achieve these objects and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, a~~ One disclosed ~~method of manufacturing flash memory device according to the present invention is characterized in that it comprises: the steps of~~ (a) sequentially forming a tunnel oxide film, a first polysilicon film and a hard mask film on a semiconductor substrate, (b) etching the hard mask film, the first polysilicon film, the tunnel oxide film and the semiconductor substrate through a patterning process to form a trench within the semiconductor substrate, (c) depositing an oxide film to bury the trench and then polishing the oxide film by means of a chemical mechanical polishing process until the hard mask film is exposed, (d) removing the hard mask film, (e) implementing a cleaning process so that a protrusion of the oxide film is recessed to an extent that the sidewall bottom of the first polysilicon film is not exposed, (f) depositing a second polysilicon film on the results in which the protrusion of the oxide film is recessed and then polishing the second polysilicon film until the protrusion of the oxide film is exposed, (g) forming a dielectric film on the second polysilicon film, and (h) forming a control gate on the dielectric film.

Please replace the paragraph beginning on page 4, line 3 with the following amended paragraph:

~~In another aspect of the present invention, it~~ It is to be understood that both the foregoing general description and the following detailed description of the ~~present invention~~ disclosed embodiments are intended to be exemplary, and explanatory and ~~are intended to~~ provide further explanation of the ~~invention as claimed~~ disclosed methods as recited in the claims.

Please replace the paragraph beginning on page 4, line 9 with the following amended paragraph:

The above and other ~~objects, features and~~ advantages of the ~~present invention~~ disclosed methods will be apparent from the following detailed description of the preferred embodiments ~~of the invention~~ in conjunction with the accompanying drawings, ~~in which~~ wherein:

Please replace the paragraph beginning on page 4, line 13 with the following amended paragraph:

FIG. 1 ~ FIG. 11 are cross-sectional views of flash memory devices for explaining ~~a method of the disclosed methods for~~ manufacturing the flash memory ~~device~~ devices ~~according to a preferred embodiment of the present invention~~.

Please replace the paragraph beginning on page 4, line 17 with the following amended paragraph:

**DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED
EMBODIMENTS**

Please replace the paragraph beginning on page 4, line 18 with the following amended paragraph:

Reference will now be made in detail to the preferred embodiments, ~~of the present invention,~~ the disclosed examples of which are illustrated in the accompanying drawings, in which like reference numerals are used to identify the same or similar parts. FIG. 1 ~ FIG. 11 are cross-sectional views of flash memory devices for explaining ~~a method of the disclosed methods for manufacturing the flash memory device according to a preferred embodiment of the present invention~~ devices.

Please replace the paragraph beginning on page 7, line 12 with the following amended paragraph:

Referring to FIG. 5, a trench oxide films 114 is deposited to bury or fill the trench 110. At this time, the trench oxide film 114 is deposited in thickness that is sufficiently deposited up to the top surface of the hard mask film 108 while burying or filling the trench 110, for example, in thickness of about 5000Å-10000Å. It is preferred that the trench oxide film 114 is formed using a HDP (high density plasma) oxide film. The trench oxide film 114 is formed is buried so that void, etc. is not formed within the trench 110.

Please replace the paragraph beginning on page 11, line 20 with the following amended paragraph:

As described above, conventionally, there was a phenomenon that the thickness of the gate oxide film adjacent to the top corner of the trench is thinner than that of the center of the gate oxide film. On the contrary, the ~~present invention~~ disclosed techniques can prevent such phenomenon by applying the self-aligned STI technology. Furthermore, the ~~present invention~~ disclosed methodology has advantageous effects that it can improve electrical characteristics such as retention fail, fast erase, etc. of the device since an active region so much as a desired CD could be obtained, and improve reliability of the device. Also, a uniform tunnel oxide film within a channel width could be kept by preventing the tunnel oxide film from being attacked. Therefore, the ~~present invention~~ disclosed methods can improve characteristics of the device.

Please replace the paragraph beginning on page 12, line 7 with the following amended paragraph:

Furthermore, the ~~present invention has~~ disclosed methods ~~new effects that it~~ can effectively secure the coupling ratio and easily secure a sufficient process margin, by freely adjusting the surface area of the floating gate.

Please replace the paragraph beginning on page 12, line 10 with the following amended paragraph:

In addition, the ~~present invention has~~ disclosed methods ~~an advantageous effect that it~~ can easily implement a flash memory device having a space of below $0.1\mu\text{m}$ in size, by use of a self-aligned floating gate process technology. Also, the present invention has new effects that it can minimize variation in the CD without resorting to the conventional method used in the mask process and the etch process, and implement a uniform floating gate over the entire wafer.

Please replace the paragraph beginning on page 12, line 16 with the following amended paragraph:

Also, the ~~present invention has~~ the disclosed methods ~~an advantageous effect that it~~ can form a trench structure having no moat.

Please replace the paragraph beginning on page 12, line 16 with the following amended paragraph:

Incidentally, the ~~present invention has~~ the disclosed methods ~~a new effect that~~ ~~it is~~ are effective in improving retention characteristics since the interface with the ONO dielectric film is stable, by processing the second polysilicon film using a chemical mechanical polishing process.

Please replace the paragraph beginning on page 12, line 22 with the following amended paragraph:

Additionally, the ~~present invention has~~ disclosed methods ~~an advantageous effect that it~~ can implement a flash memory device of a high reliability with a low cost, by using existing equipments and processes without using complex processes and additional equipments.

Please replace the paragraph beginning on page 13, line 6 with the following amended paragraph:

The forgoing embodiments are merely exemplary and are not to be construed as limiting the present invention. The present teachings can be readily applied to other types of apparatuses. The description of the ~~present invention~~ disclosed methods is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art.